AES Puerto Rico Coal Ash Aggregate Beneficial Reuse Investigation

Issue

In June 2011, EPA accompanied environmental activist Ms. Ruth Santiago, Esq., representatives of the environmental group ANDA (Association Nacional de Derecho Ambiental), and other concerned citizens on visits to eleven sites in Southern Puerto Rico, where aggregate manufactured from ash generated by the AES Guayama coal-fired power plant had been placed on land pursuant to beneficial use determinations issued by the Puerto Rico Environmental Quality Board. Ms. Santiago, et. al., maintain that such use is damaging to the environment and have requested intervention by EPA.

Current Status

During our site visits, the Region observed the AES coal ash aggregate being used as fill material in great amounts over extensive unlined areas, some in proximity to rivers, streams, and wetlands. We subsequently met with the P.R. Department of Health to review their groundwater data, obtained from wells near the aggregate sites (no exceedences observed), and spoke at length with the Puerto Rico Environmental Quality Board, who said they would provide us their aquifer ground water data. We will also obtain and review similar data from the P.R. Aqueduct and Sewer Authority.

Our intent is to continue to investigate and assess the potential for adverse impacts from the past and existing use of the aggregate. To accomplish this, we will review existing data and any new data we may obtain from monitoring by DESA or CEPD of private drinking water wells that we believe may be beneficial to obtain in the environmental justice area near several of the coal ash aggregate deposition sites. This approach is consistent with the Agency's actions in Pines, Indiana, as well as with its May 2010 proposed coal ash rule, which ascribes "significant environmental benefits" to coal ash reuse in encapsulated forms such as wallboard, concrete, and bricks, but considers large fill operations to constitute disposal and solicits comment on whether unencapsulated uses warrant tighter federal control. We are aware of numerous damage cases documented by EPA and others, including a 2003 RCRA 7002 Order and 2003 and 2004 CERCLA Orders for Pines, Indiana (requiring a remedial investigation/feasibility study, and placing numerous households on bottled water following the discovery of heavy metals contamination in drinking water wells from a nearby unlined coal ash landfill). Although no data documenting aquifer contamination by coal ash aggregate in Puerto Rico has yet been obtained, the deposition we observed is similar to the disposal scenarios detailed in a 2007 EPA report on damage cases, the majority of which involved coal ash disposal in unlined surface impoundments and unlined landfills. Additionally, our investigation of this issue has also been requested by the coal combustion residuals rulemaking work group lead (Alex Livniat, PhD) in charge of damage case assessment for the Office of Resource Conservation and Recovery.

Interest from Elected Officials

None, although in 2007 AES agreed to pay a $6 million settlement on a lawsuit with the

government of the Dominican Republic, which alleged that AES dumped 82,000 tons of coal ash from the AES Guayama facility along several beaches.

Background

In May 2010, EPA published a proposed rule to ensure the safe disposal and management of coal ash. Under the proposed rule, the Agency would leave in place the exemption for beneficial uses of coal ash, in which coal combustion residuals are recycled as components of products instead of being placed in impoundments or landfills. EPA has yet to issue a final rule, and, until a decision is made, EPA's prior determination that coal ash is a solid waste remains in force. However, it is noted that no RCRA regulatory requirements for coal ash management currently exist, while states may, and have, made binding regulatory determinations on appropriate coal ash management practices. U.S. coal fired power plants generate over 135 million tons of ash and other residues annually. Despite the presence of heavy metals, coal ash is used in a variety of applications. As of 2008, 44% of U.S. coal combustion residues were reused for road base, structural fill, snow and ice traction control, and in the production of cement and wallboard. It should be noted that, with the promulgation of EPA's Clean Air Interstate Rule, over half of U.S. coal fired power plants are projected to be equipped with upgraded air pollution control technology by 2020. The upgraded air pollution control technology will result in both a greater amount of ash for each unit of electricity produced, and an overall increase in the total content of hazardous pollutants in the ash.

In September 2010, the Region met with Mr. Carlos Gonzalez, the coal combustion product manager for AES Puerto Rico. He informed us that the Guayama coal-fired power plant mixes all of its bottom and fly ash with the spent limestone from its air pollution control equipment, to produce 4,000 tons/week of Agremax, an aggregate it ships off-site as a "product" in Puerto Rico (as well as to Alabama) for use in road bed construction, concrete manufacturing, and soil stabilization. In Puerto Rico, these uses are consistent with the existing beneficial use determinations made by the Puerto Rico Environmental Quality Board, which EPA confirmed have been, and remain, effective.

AES has nine other coal fired power plants in the Northern Hemisphere. Six plants landfill their ash, while three reuse ash and ash/limestone mixtures, for landfill daily cover and road base in Hawaii, cement manufacturing in New York, and mine fill in Connecticut. The positive Puerto Rico Environmental Quality Board beneficial use determination is based on Agremax not failing the RCRA toxicity characteristic leaching procedure (TCLP) for heavy metals, as detailed in a 2007 study and report by the Puerto Rico legislature. The use of the TCLP to evaluate the potential for environmental release of heavy metals from coal combustion residues has been criticized by the EPA Science Advisory Board and the National Academy of Sciences. In response, EPA has developed new test methods for evaluating coal combustion residues for

beneficial use applications, which are currently undergoing validation. EPA has no plan to replace the regulatory uses of the TCLP with the new test methods. Rather, once validated, EPA intends the new test methods to be used where TCLP is not required or best suited, and where waste management or reuse conditions are known, in order to provide an estimate of contaminant release tailored to a particular environmental scenario or defined range of conditions.